Iowa Department of Natural Resources

Leading Iowans in caring for our natural resources

Chuck Gipp, Director | Bruce Trautman, Deputy Director

Stream Water Quality Summary 2000-2014*

Water Quality Parameter	Units	Number of Samples	Min Value	Percentiles					Max Value
				10th	25th	50th	75th	90th	
Acetochlor [4]	µg/L	8,627	<0.1	<0.1	<0.1	<0.1	<0.1	0.18	11
Alachlor [4]	µg/L	8,627	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	2
Ammonia (as N)	mg/L	13,448	<0.1	<0.1	<0.1	<0.1	<0.1	0.19	5.7
Atrazine [4]	µg/L	8,627	<0.1	<0.1	<0.1	<0.1	<0.1	0.60	53
Butylate	µg/L	8,627	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carbonaceous BOD (5 day)	mg/L	13,208	<2	<2	<2	<2	2	4	30
Chloride	mg/L	12,749	<1	11	16	22	29	40	180
Chlorophyll a [1]	µg/L	4,832	<1	<1	3	10	37	110	620
Chlorophyll b [1]	µg/L	4,828	<1	<1	<1	<1	<1	2	70
Chlorophyll c [1]	µg/L	4,787	<1	<1	<1	<1	2	9	66
Chlorophyll free of pheophytin	µg/L	8,575	0.5	2	4	10	28	79	870
Corrected Chlorophyll a	µg/L	4,835	<1	2	5	13	43	123	640
Cyanazine [4]	µg/L	8,627	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.3
Deethylatrazine [4]	µg/L	8,627	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.54
Deisopropylatrazine [4]	µg/L	8,627	<0.1	<0.1	<0.1	<0.1	<0.1	0.14	2.6
Dimethenamid [4]	µg/L	6,794	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	3.8
Diss. Orthophosphate (as P)	mg/L	13,394	<0.1	<0.1	<0.1	<0.1	0.15	0.28	9.5
Dissolved Oxygen	mg/L	13,564	0.7	7.7	8.8	10.6	12.9	14.4	21
E.coli Bacteria	CFU/100 ml	13,434	<10	<10	30	110	380	1800	920,000
Field pH	pH units	13,574	5	7.8	8	8.2	8.4	8.5	10.9
Field Temperature	Celsius	13,622	0	0.1	1.8	11.9	20.3	24.4	34.3
Flow**	CFS	11,658	<1	25	98	350	1300	3800	82,000
Metolachlor [4]	µg/L	8,627	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	23
Metribuzin [4]	µg/L	8,627	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.5
Nitrate+Nitrite (as N)	mg/L	13,448	<0.1	0.7	2.6	5.4	7.9	11	39
Pheophytin [1]	µg/L	4,828	<1	0.5	1	3	8	18	204
Silica [2]	mg/L	8,203	<1	4.9	8.9	13	17	21	190
Simazine [4]	µg/L	8,618	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	20
Specific Conductance [3]	µmhos/cm	8,374	120	420	510	620	720	830	1,700
Sulfate	mg/L	12,450	<1	19	25	36	61	100	410
Total Dissolved Solids	mg/L	13,444	4	250	300	360	430	510	3,980
Total Hardness (as $CaCO_3$)	mg/L	13,221	3	200	240	300	350	410	820
Total Kjeldahl Nitrogen	mg/L	13,446	<0.1	0.3	0.5	0.74	1.2	1.8	28
Total Phosphorus	mg/L	13,447	<0.1	<0.1	0.11	0.19	0.32	0.55	26
Total Suspended Solids	mg/L	13,448	0.5	4	9	31	79	190	17,000
Trifluralin [4]	µg/L	8,627	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.35
Turbidity	NTU	13,395	<1	2.5	5.4	15	37	88	8,500

µg/L – micrograms per liter (parts per billion)
mg/L – milligrams per liter (parts per million)
CFU/100 ml – Colony Forming Units per 100 milliliters of water
CFS – Cubic Feet per Second (ft^3/sec)
µmhos/cm – micromhos per centimeter
NTU – Nephelometric Turbidity Units; Diss. – Dissolved
< – less than detection limit shown; BOD – Biological Oxygen Demand

Raw data are available through IASTORET at https://programs.iowadnr.gov/iastoret/

Note: This summary differs from previous summaries in that it only includes monthly data for stream sites monitored as part of the fixed monthly network. Previous summaries included monthly, event, and other available data for these sites. Additional stream sites throughout Iowa are also monitored, but are not included in this summary, since their sampling frequency and parameters vary from the fixed network.

* Includes only monthly samples for all stream sites

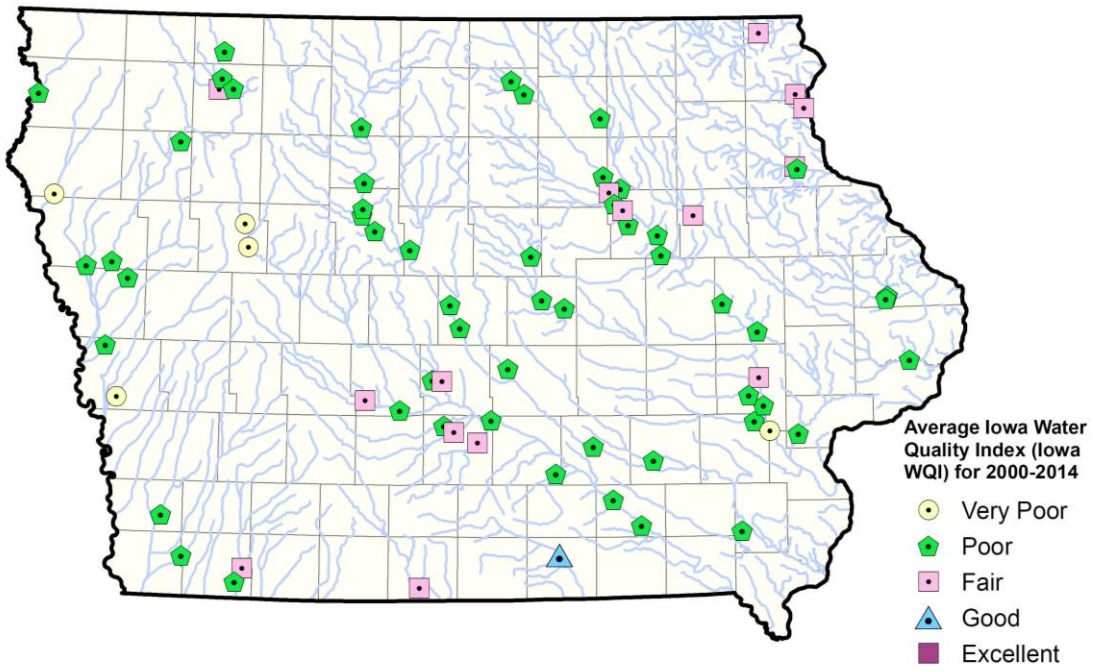
** Provisional data from the U.S. Geological Survey

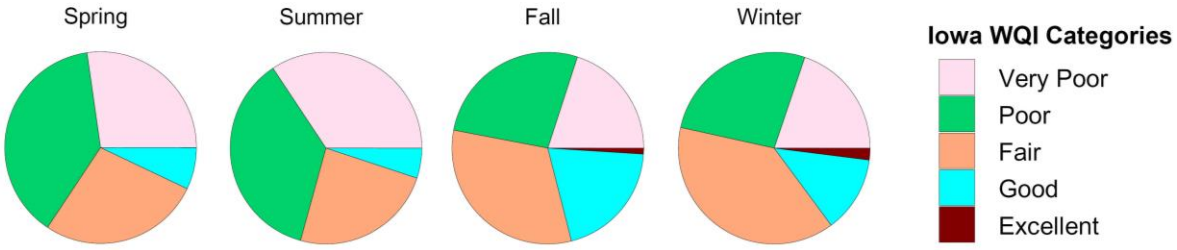
[1] Sampling discontinued in 2005
[2] Sampling discontinued in 2008
[3] Sampling discontinued in 2009
[4] Sampling suspended from Sep 2008 through May 2012; sampling resumed May 2012 through July 2014

A total of 80 stream sites were sampled monthly from 2000-2002; 84 sites from 2003-2006. Number of sites sampled from Aug-Dec 2006 varied from 75 to 83. A total of 75 stream sites were sampled monthly from Jan 2007-Sept 2010. However, due to budget constraints the network of 75 stream sites were not fully monitored Sept 2008-Mar 2009. A total of 81 stream sites were sampled monthly from Oct 2010-Jun 2012; 75 from Jul 2012 through Jan 2014; 74 sites from Feb-Aug 2014; 78 in Sep 2014; 60 in Oct & Nov; and 62 in Dec.

Iowa Water Quality Index for 2000-2014

In 2005, the Iowa Department of Natural Resources developed the Iowa Water Quality Index (WQI), a standardized method for comparing the water quality of various water bodies across the state. The Iowa WQI rates water quality using the following nine parameters: biological oxygen demand, dissolved oxygen, *E.*coli bacteria, nitrate+nitrite as nitrogen, total detected pesticides, pH, total phosphorus, total dissolved solids, and total suspended solids. If a result is missing for any of these parameters, the Iowa WQI assigns a default value for the missing parameters. Iowa WQI ranks range from 0 – 100 and streams are classified as **very poor** (0 – 25), **poor** (25.1 – 50), **fair** (50.1 – 70), **good** (70.1 – 90), and **excellent** (90.1 – 100). For 2000-2014, 1% of the monthly stream WQI values were in the **excellent** category, 11% were **good**, 31% were **fair**, 32% were **poor**, and 25% were **very poor**. (See map below for average WQI rank for each site.)





Streams in Iowa show seasonal Iowa WQI patterns. For the majority of streams, water quality is **poor** during the spring, followed by a decline in water quality during the summer months when the number of streams in the **very poor** category increases, while the number of streams in the **poor** category remains relatively the same. Water quality is at its best during the fall and winter months, with nearly 53% of the streams classified in the **fair**, **good**, and **excellent** categories during the fall and 54% of the streams classified in the **fair**, **good**, and **excellent** categories during the winter. (See pie charts above.)